



RENOVATION OF BERMUDAGRASS PASTURES

Renovation is a practice or series of management practices which “restores the vigor” or “makes new again”. In pasture management, renovation refers to improvement of a permanent pasture by changed management. Renovation of bermudagrass pastures may be as simple as soil testing and applying proper fertilization; or, it may be as complex and intensive as destroying the existing sod, preparing a seedbed and sprigging again. The intensity and level of renovation required depends on the reason for the decreased vigor, and the management goal of the producer.

Although there are many reasons for bermudagrass pasture decline, the following symptoms would indicate that renovation should be considered:

- 1) Reduced yields
- 2) Thin stands with bare ground showing and a decrease in amount and vigor of rhizomes
- 3) Invasion of broadleaf weeds and undesirable grasses
- 4) Rough soil surfaces
- 5) Poor drainage
- 6) Poor water penetration in soil profile
- 7) Accumulation of nutrients in the top 1-inch of soil

Dr. David H. Bade, Professor and Extension Forage Specialist

The following summarizes renovation practices and is given to help you select those which are relevant to your operation. These include:

Minimum Renovation	Extensive Renovation
Soil Testing	Sub-soiling or chiseling
Fertilization	Discing or plowing
Weed Control	Sod-seeding
Prescribed Burning	Replanting

Soil Testing and Fertilization

The first renovation practice should be extensive soil testing and fertilization in accordance with the soil test recommendations. This includes not only nitrogen, but also phosphorous (P), potassium (K), lime, and any micronutrients needed. Soil testing different levels of the soil profile would indicate the availability of nutrients to plant roots (i.e., soil test the top 2 inches, from 2 to 6 inches, from 6 to 12 inches). In many fields, potassium has been depleted due to fertilization with nitrogen alone, along with the removal of hay from the pasture. **Remember:** 6 tons of hay/acre removes not only 300 pounds of N, but also 60 pounds of P and 240 pounds of K/acre. Production of high hay yields with N alone results in “mining” K from even those soils with inherent high levels of K. Low levels of K in the soil profile decreases rhizome growth and vigor, resulting in thin bermudagrass stands.

Weed Control

Weeds compete with bermudagrass for water, nutrients and sunlight. Weeds at establishment prevent good stands, and often result in plantings which do not cover for years or which never obtain a good grass cover. Thin, weakened bermudagrass stands from low fertility, drought, or other causes cannot compete with weeds and must be helped with appropriate weed control. Result demonstrations in Victoria County have shown that from 3 to 7 pounds of bermudagrass will be produced for each 1 pound of weeds controlled.

Prescribed Burning

Burning during the dormant period will remove excess dead forage and allow the soil to warm earlier promoting faster green-up in the spring, destroy some insects, winter weeds, and weedy grasses. The disadvantages of burning include fire hazards, removing stubble which protects the grass from late freezes, and allowing more soil erosion. Timing is critical and must be done after weeds have emerged but before green-up. Waiting until later decreases yields. Earlier burning removes stubble and allows for emerging weeds to outgrow the bermudagrass. The best time is usually about 1 week prior to the last average frost date.

A 150-acre pasture of bermudagrass ("Coastal") was burned on February 10, 1987 in Falls County. Burning increased grass production by 143%, while decreasing weed production by 96%. A 4% increase in protein, a 2% increase in TDN, and a slight increase in the mineral content (Ca, P, K, Mg) of the forage was seen in the burned pasture.

Subsoiling, Chiseling, Discing, Plowing

These operations will partially destroy the sod, but are used to renovate bermudagrass pastures under certain conditions. Subsoiling and chiseling will eliminate compaction layers. This will loosen the soil and allow penetration of moisture in the soil profile, decrease water runoff, and aerate the soil for better root development. Soil types which become very compact and develop plowpans will respond to equipment that loosens the soil below the compaction layer.

More intensive discing or plowing will incorporate organic matter in the soil, incorporate fertilizer and lime, destroy grassy weeds, scatter cut sprigs, and increase soil water penetration. If done in the fall, it also allows for sod-seeding of legumes in the pasture. Fall's can be dry and can cause the desiccation of rhizomes and sprigs. Intensive discing in the fall has more risk than discing in late winter or early spring. Cultivation or discing of hay pastures is often desirable to smooth the soil surface, making haying easier. This is especially true where fire ants are prevalent, or where cattle were allowed to graze during wet conditions.

Any of the above renovation practices should be done during grass dormancy (winter), with care taken to conserve soil moisture, especially in a drought.

Replanting

Replanting of bermudagrass stands should only be considered when inadequate live rhizomes are left (< 25% stand). In a pasture which was once productive, this usually only happens after an extreme drought. The expense of this operation makes it prohibitive except under unusual conditions.